Environmental GEO-Technologies, LLC

September 19, 2015

Mr. Allan Batka
United States Environmental Protection Agency
Region 5 (WU-16J)
77 West Jackson Blvd.
Chicago, Illinois 60604

Re: EGT MITs (in conformance with MI-163-1W-C010 & MI-163-1W-C011, section I.H.2)

Dear Mr. Batka:

Environmental Geo-Technologies, LLC ("EGT") hereby submits its Mechanical Integrity Test of EGT Wells #s 1-12 & 2-12, as prepared by WSP/Parsons Brinckerhoff (formerly Subsurface Technology, Inc.) in conformance with the EPA-interpreted requirements of its two EPA UIC permits (#s MI-163-1W-C010 & MI-163-1W-C011, most notably Section I.H.2 of both permits).

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

We trust that you find this submission satisfactory, however, if you have any questions or comments, please feel free to contact us.

Sincerely,

Richard J. Powals, P.E.
Vice President

cc: J. Frost (EGT), P. Sullivan (EGT), T. Athans (HH)

att.

rjp091916/EGTEPAMITs-2016

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

JUL 14 2016

REPLY TO THE ATTENTION OF:
WU-16J

CERTIFIED MAIL 7014 2870 0001 9579 6273
RETURN RECEIPT REQUESTED

Richard J. Powals
Vice-President
Environmental Geo-Technologies, LLC
28470 Citrin Drive
Romulus, Michigan 48174

Subject: Approval of Proposed Procedures for Testing in the Environmental Geo-Technologies #1-12 and #2-12 Wells, U.S. Environmental Protection Agency Underground Injection Control Permit #MI-163-1W-C010 and #MI-163-1W-C011, July 2016

Dear Mr. Powals:

The U.S. Environmental Protection Agency has reviewed and hereby approves the procedures proposed in your letter of June 20, 2016, for the testing referenced above with several conditions.

A copy of the pressure gauge calibration certificate for each gauge used during the testing (Standard Annulus Pressure Test and Ambient Reservoir Pressure Monitoring) should be submitted with your report.

I am enclosing information sheets for these tests. We request you fill in the blank cells and confirm the data in the gray cells and return the information sheets with the test results and interpretation, and up-to-date well schematics. This will help ensure that all the information we require for interpretation of the test will be included in your submission. Any anomalies in test results should be discussed. For example, both 2015 fall-off tests showed unusual behavior that was not initially discussed in EGT's reports. Note also that the differences between the two fall-off tests should be discussed. When reporting depths from the deviated well, please make it clear whether the depths are measured depths or true vertical depths, as appropriate. Please remember to submit the digital data either on CD or by email when you submit your report. Note that if the tests do not provide definitive information concerning the conditions which they are designed to ascertain, or approved procedures are not followed, you will be required to rerun them.

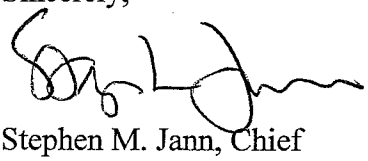
EPA cannot determine whether these tests will satisfy EGT's UIC permit requirements until the results have been submitted and analyzed. All mechanical integrity tests must

be approved by the Director, which can only be done after the test results have been reviewed. The procedures you submitted should provide acceptable results, if the tests are properly conducted and the results properly interpreted.

It is our practice that testing be witnessed by an EPA staff member or our contract field inspector to the extent possible. Please contact Jeff McDonald at (312) 353-6288 to schedule the witnessing of these tests. Unwitnessed tests are only acceptable if it is impossible for an EPA staff member or the field inspector to be present.

If you have any questions about this letter or if you find during the test that you are unable to follow the approved procedures, please contact Stephen Roy of my staff by phone at (312) 886-6556 or by email to roy.stephen@epa.gov.

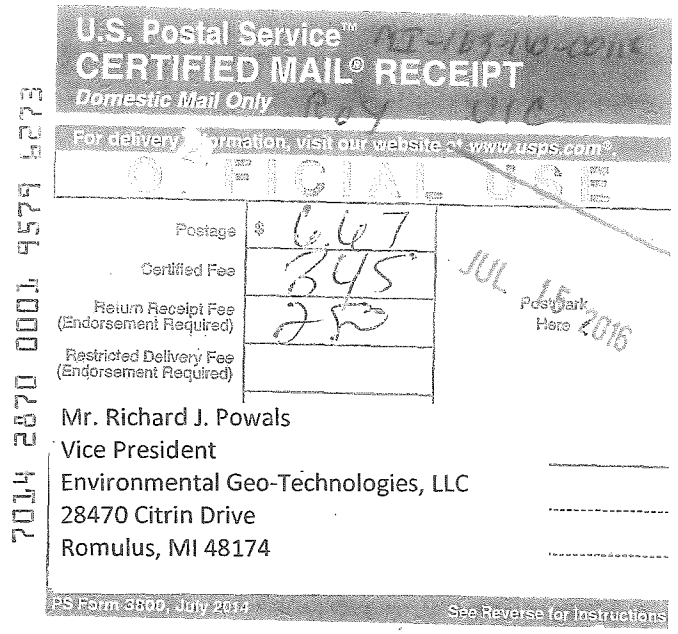
Sincerely,



Stephen M. Jann, Chief
Underground Injection Control Branch

Enclosures

cc: Sam Williams (email only with procedure)
Ray Vugrinovich, Michigan Department of Environmental Quality (email letter only)
Rich Schildhouse, WSP | Parsons Brinckerhoff (email only)



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JUL 15 2016
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Mr. Richard J. Powals
Vice President
Environmental Geo-Technologies, LLC
28470 Citrin Drive
Romulus, MI 48174

PS Form 3800, July 2014 — See Reverse for Instructions

DMU-165 (MC) ROV

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Mr. Richard J. Powals
Vice President
Environmental Geo-Technologies, LLC
28470 Citrin Drive
Romulus, MI 48174

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X [signature] ☐ Agent ☐ Addressee

B. Received by (Printed Name) | C. Date of Delivery 6-18-16

D. Is delivery address different from item 1? ☐ Yes
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4. Restricted Delivery? (Extra Fee) ☐ Yes

7014 2870 0001 9579 6273

PS Form 3811, July 2013 Domestic Return Receipt

UIC Branch Correspondence Sign-Off Sheet

Subject/Title: Test procedure approval, EGT, MI-163-1W-C011 & -C012

Concurrences

Check all that apply		Name	Initials	Date
☑	Originator:	Steve Roy	SR	7/5/16
☑	Reviewer:	Ross Micham	RM	7/5/16
☑	Proofing:	Naomi Coleman	NC	7/6/16
☑	Section 1 Chief:	Lisa Perenchio	LP	7/15/16
☐	Section 2 Chief:	Dana Rzeznik		
☑	Branch Chief:	Steve Jann	SJ	7-14-16
☐	WD APA:			
☐	WD Director:	Tinka Hyde		

Date Stamp and Copy after Final Signature

Return To: _____

Comments: Letter mailed 7/18/16 -sr
CC's Sent 7/15/16

Environmental GEO-Technologies, LLC

June 20, 2016

Mr. Allan Batka
United States Environmental Protection Agency
Region 5 (WU-16J)
77 West Jackson Blvd.
Chicago, Illinois 60604

Re: EGT MIT (in conformance with MI-163-1W-C010 & MI-163-1W-C011, section I.H.3)

Dear Mr. Batka:

Environmental Geo-Technologies, LLC ("EGT") hereby submits its request to conduct MITs of its Well Numbers 1-12 & 2-12 during the week of July 25-30, 2016 by Subsurface Technology, Inc. (now WSP / Parsons Brinkerhoff) in conformance with the requirements of its two EPA UIC permits (#s MI-163-1W-C010 & MI-163-1W-C011, most notably Section I.H.3 of both permits).

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

We also wish to confirm that EGT's conduct of the aforementioned MITs in paragraph 1 above will satisfy EGT's 2016 MIT requirement in its UIC permits.

We trust that you find this submission satisfactory, however, if you have any questions or comments, please feel free to contact us. Otherwise, we look forward to written authorization from EPA to conduct such Mechanical Integrity Testing.

Sincerely,

Richard J. Powals, P.E.
Vice President

cc: J. Frost (EGT), S .Papas (EGT), P. Sullivan (EGT), T. Athans (HH)

att.

rjp062016/EGTEPAMITs-2016

PROPOSED SCHEDULE FOR FIELD ACTIVITIES

DAY #1 (July 25, 2016)

MORNING

- Run annulus pressure test on EGT Well #1-12
- Run annulus pressure test on EGT Well #2-12
- Run temperature survey on EGT Well #1-12

AFTERNOON

- Run radioactive tracer survey on EGT Well #1-12

DAY #2 (July 26, 2016)

MORNING

- Run temperature survey on EGT Well #2-12

AFTERNOON

- Run radioactive tracer survey on EGT Well #2-12

DAY #3 (July 27, 2016)

- Start build-up of Well #1-12 (1000)
- End build-up of Well #1-12 (2200)
- Start fall off of Well #1-12 (2200)

DAY #4 (July 28, 2016)

- End fall off of Well #1-12 (1000)
- Start build-up of Well #2-12 (1200)
- End build-up of Well #2-12 (2400)
- Start fall off of Well #2-12 (2400)

DAY #5 (July 29, 2016)

- End fall off Well # 2-12 (1200)

ANNULUS PRESSURE TEST PROCEDURES
FOR
EGT WELL #1-12 AND EGT WELL #2-12

- Record last date of injection
- Install digital test gauge at test port that has been certified within the last 12 months (certificates to be at hand)
- Pressure up annulus to approximately 900 psi for one (1) hour prior to test to allow for annulus to equilibrate
- Record current annulus pressure
- Record current injection pressure
- Record current annulus fluid in storage tank
- Pressure up annulus to 900 +25/-0 psi and allow annulus to equilibrate
- Record fluid needed to establish pressure
- Record data at 10-minute intervals for a one (1) hour period. (Pressure change limited to 3% of applied pressure for a one (1) hour period)
- Provide system back-up to confirm gauge reading
- Return annulus to normal stand-by pressure
- Record fluid level in tank
- Put WAMS system back on line
- Return well to operator control

PROCEDURES FOR RUNNING STATIC TEMPERATURE LOG ON EGT WELL #1-12

- Rig-up wireline unit on hole
- Verify temperature sonde has been calibrated and has certification
- Conduct "Bucket Test" on hot and cold samples
- Verify sonde temperature in ice water
- Verify sonde temperature in warm water
- Run tool well and record temperature from surface to K.D. (4649')or top of fill
- Tool to be run at a consistent speed and not to exceed 30 feet per minute
- Once tool reaches bottom, stabilized temperature readings (3 minutes) should be made at 500' intervals while coming out of well
- After completion of temperature survey, wireline rig should be made ready to perform radioactive tracer survey (RTS)

PROCEDURES FOR RUNNING
STATIC TEMPERATURE LOG
ON
EGT WELL #2-12

- Rig-up wireline unit on hole
- Verify temperature sonde has been calibrated and has certification
- Conduct "bucket test" on hot and cold samples
- Verify sonde temperature in ice water
- Verify sonde temperature in warm water
- Run tool well and record temperature from surface to K.D. (4550')or top of fill
- Tool to be run at a consistent speed and not to exceed 30 feet per minute
- Once tool reaches bottom, stabilized temperature readings (3 minutes) should be made at 500' intervals while coming out of well
- After completion of temperature survey, wireline rig should be made ready to perform radioactive tracer survey (RTS)

PROCEDURES FOR RUNNING RADIOACTIVE TRACER SURVEY ON EGT WELL #1-12

- Radioactive tracer material to be iodine 131
- Rig-up surface read out wireline unit on hole
- Run into hole with casing collar locator and radioactive tracer tool
- Run bottom up base run survey from 4400' (or deepest attainable) to approximately 3080' (sensitivity at 40 counts per second per inch (CPSPI)
- Run first 5-minute stat with bottom detector at 3955'
- Run second 5-minute stat with bottom detector at 3802'
- Start injection at a stable rate of 30-35 gpm
- Release first slug at 3750'
- Run 30-minute time drive with bottom detector at 4080' (Time starts when slug passes bottom detector)
- Release second slug at 3100'
- Chase slug with a minimum of two (2) chases in tubing (as many as practical)
- Run final base bottom-up from 4400' (or deepest attainable) to approximately 3080'
- Rig down wireline
- Turn over to operator

PROCEDURES FOR RUNNING RADIOACTIVE TRACER SURVEY ON EGT WELL #2-12

- Radioactive tracer material to be iodine 131
- Rig-up surface read out wireline unit on hole
- Run into hole with casing collar locator and radioactive tracer tool
- Run bottom up base run survey from 4300' (or deepest attainable) to approximately 3080' (sensitivity at 40 counts per second per inch (CPSPI)
- Run first 5-minute stat with bottom detector at 3855' ✓
- Run second 5-minute stat with bottom detector at 3800' ✓
- Start injection at a stable rate of 30-35 gpm
- Release first slug at 3750'
- Run 30-minute time drive with bottom detector at 3977' ✓ 3978' casing shoe (Time starts when slug passes bottom detector)
- Release second slug at 3100'
- Chase slug with a minimum of two (2) chases in tubing (as many as practical)
- Run final base bottom-up from 4300' (or deepest attainable) to approximately 3080'
- Rig down wireline
- Turn over to operator

PROCEDURES FOR RUNNING

AMBIENT PRESSURE MONITORING

ON

EGT WELL #1-12

Run in well with dual quartz memory gauges on slick line, pressure and temperature readings to be recording at 5 second intervals

- Inject into well at a steady rate of 30 to 35 GPM for at least 12 hours prior to start of falloff portion of test

- Well No. 2-12 will be shut down at least 4 hours prior to and during the fall off portion of test. Shut in of Well No. 2-12 is optimal during entire test of Well No. 1-12

- Bottom gauges to be in well to a depth of ±3950' KB (top of injection interval) and record pressures and temperatures for a minimum of 2 hours prior to shutting down injection

- Shut down injection as rapidly as possible at determined time starting fall off portion

- Record pressures and temperatures for a minimum of 8 hours.

- Pull bottom hole pressure gauge out of well

- Rig down wireline

- Turn over to operate

PROCEDURES FOR RUNNING

AMBIENT PRESSURE MONITORING

ON

EGT WELL #2-12

Run in well with dual quartz memory gauges on slick line, pressure and temperature readings recording at 5 second intervals

- Inject into well at a steady rate of 30 to 35 GPM for at least 12 hours prior to start of falloff portion of test
- Well No. 1-12 will be shut down at least 4 hours prior to and during the fall off portion of test. Shut in of Well No. 1-12 is optimal during entire test of Well No. 2-12
- Bottom gauges to be in well to a depth of ±3950' KB (top of injection interval) and record pressures and temperatures for a minimum of 2 hours prior to shutting down injection
- Shut down injection as rapidly as possible at determined time starting fall off portion
- Record pressures and temperatures for a minimum of 8 hours
- Pull bottom hole pressure gauge out of well
- Rig down wireline
- Turn over to operator

GENERAL DESCRIPTION OF EGT WELL #1-12

Location: Wayne County / Romulus, Michigan
Section: 12 / Township: 35 / Range: 9B

Ground Level Elevation: 626'
K.B.: 13' / Drilling measured from K.B Elev. 639'

Conductor: 20"- 94# Surface to 119'
Protection Casing: 13-3/8" - 48# Surface to 396'
Intermediate Casing: 9-5/8" - 36# Surface to 825'
Long String Casing: 7" - 26# Surface to 4079'
Injection String: 4-1/2" Fiberglass Surface to 4060'

Packer:	4067'
Bottom of Tailpipe:	4080'
T.D.:	4649'

GENERAL DESCRIPTION OF EGT WELL #2-12

Location: Wayne County / Romulus, Michigan
Section: 12 / Township: 35 / Range: 9B

Ground Level Elevation: 626'
K.B.: 13' / Drilling measured from K.B Elev. 639"

Conductor: 16"- 65# Surface to 178'
Protection Casing: 13-3/8"- 48# Surface to 598'
Intermediate Casing: 9- 5/8"- 36# Surface to 1444'
Long String Casing: 7"- 26# Surface to 3983'
Injection String: 4-1/2" Fiberglass Surface to 3953'

Packer:	**3960'**
Bottom of Tailpipe:	**3971'**
T.D.:	**4550'**